

What is claimed is:

1. A method for treating fresh produce to remove debris and to inhibit the growth of fungus, comprising:
submerging produce in process water, said process water comprising an effective amount of a chlorine dioxide solution,
5 said chlorine dioxide solution being present in the process water in an amount sufficient to clean substantially all debris from the surface of the produce and to inhibit the growth of fungus on the produce.
2. The method of claim 1, wherein said effective amount of said chlorine dioxide solution in the process water is at least about 0.1 ppm.
3. The method of claim 2, wherein said effective amount of said chlorine dioxide solution in the process water is between about 0.1 ppm and about 10 ppm.
4. The method of claim 3, wherein said effective amount of said chlorine dioxide solution in the process water is between about 0.5 ppm and about 1 ppm.
5. The method of claim 1, wherein the pH of said process water comprising the chlorine dioxide solution is less than 11.
6. The method of claim 5, wherein the pH of said process water comprising the chlorine dioxide solution is between about 2 and about 10.5.
7. The method of claim 6, wherein the pH of said process water comprising the chlorine dioxide solution is between 3 and 10.
8. The method of claim 1, wherein said produce is submerged in said process water for at least about 30 seconds.
9. The method of claim 1 further comprising:
generating said chlorine dioxide solution by the reaction of solution comprising sodium chlorite with a solution comprising phosphoric acid.
10. The method of claim 1 further comprising:
generating said chlorine dioxide solution by the reaction of solution comprising sodium chlorite and sodium chloride with a solution comprising phosphoric acid.
11. The method of claim 1 further comprising:

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generating said chlorine dioxide solution by the reaction of solution comprising sodium chlorite and sodium chloride with a solution comprising sodium 2-ethylhexyl sulfate and phosphoric acid.

12. The method of claim 1 further comprising passing said produce under a flow of a second chlorine dioxide solution to wash debris from the produce.

13. The method of claim 12 further comprising generating said second chlorine dioxide solution by the reaction of a solution comprising sodium chlorite with a solution comprising phosphoric acid, sodium 2-ethylhexyl sulfate, and at least one of the following: dodecylbenzenesulfonic acid or sodium dodecylbenzene sulfonate.

14. The method of claim 12 further comprising generating said second chlorine dioxide solution by the reaction of a solution comprising sodium chlorite and sodium chloride with a solution comprising phosphoric acid, sodium 2-ethylhexyl sulfate, and at least one of the following: dodecylbenzenesulfonic acid or sodium dodecylbenzene sulfonate.

15. A method for treating process water and an object submerged in process water, said process water and said object including at least one contaminant from the following group: debris, soil, fungus, and organic chemicals, said method comprising:

immersing said object in said process water;

generating a chlorine dioxide solution;

admixing with said process water an effective amount of the chlorine dioxide solution, said chlorine dioxide solution being present in an amount sufficient to treat contaminants on said object and in said process water;

monitoring the oxidation reduction potential of said process water; and

when said oxidation reduction potential of said process water falls below a predetermined level, repeating said generation, admixing and monitoring steps until substantially all of said contaminants in said process water and on said object have been treated.

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16. The method of claim 15 further comprising:
generating said chlorine dioxide solution by the reaction of solution comprising sodium chlorite with a solution comprising phosphoric acid.

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3 17. The method of claim 15 further comprising:
generating said chlorine dioxide solution by the reaction of solution comprising sodium chlorite and sodium chloride with a solution comprising phosphoric acid.

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4 18. The method of claim 15 further comprising generating said chlorine dioxide solution by the reaction of a solution comprising sodium chlorite with a solution comprising phosphoric acid and sodium 2-ethylhexyl sulfate.

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5 19. The method of claim 15 further comprising generating said chlorine dioxide solution by the reaction of a solution comprising sodium chlorite and sodium chloride with a solution comprising phosphoric acid and sodium 2-ethylhexyl sulfate.

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6 20. The method of claim 15 further comprising monitoring the pH of the process water admixed with the chlorine dioxide solution and maintaining the pH of the process water admixed with the chlorine dioxide solution below about 11.

7 21. The method of claim 20 further comprising maintaining the pH of the process water admixed with the chlorine dioxide solution between about 2 and about 10.5.

22. A method for treating process water, comprising:
providing process water having at least one contaminant from the following group: debris, soil, fungus, and organic chemicals;

5 admixing with said process water an effective amount of a chlorine dioxide solution to treat said process water by oxidizing contaminants in the process water;

providing a monitor for sensing the oxidation reduction potential of the process water;

10 positioning in the process water the monitor for sensing the oxidation reduction potential residual of the process water;

monitoring the oxidation reduction potential residual of the process water;

15 generating additional amounts of said chlorine dioxide
solution when said oxidation reduction potential residual drops
below a predetermined level; and

admixing said additional amounts of said chlorine dioxide
solution with said process water to continue to treat
20 contaminants in the process water.

23. The method of claim 22 further comprising:
generating said chlorine dioxide solution by the reaction
of solution comprising sodium chlorite with a solution
comprising phosphoric acid.

24. The method of claim 22 further comprising:
generating said chlorine dioxide solution by the reaction
of solution comprising sodium chlorite and sodium chloride with
a solution comprising phosphoric acid.

25. The method of claim 22 further comprising generating
said chlorine dioxide solution by the reaction of a solution
comprising sodium chlorite with a solution comprising
phosphoric acid and sodium 2-ethylhexyl sulfate.

26. The method of claim 22 further comprising generating
said chlorine dioxide solution by the reaction of a solution
comprising sodium chlorite and sodium chloride with a solution
comprising phosphoric acid and sodium 2-ethylhexyl sulfate.

27. The method of claim 22 further comprising monitoring
the pH of the process water admixed with the chlorine dioxide
solution and maintaining the pH of the process water admixed
with the chlorine dioxide solution below about 11.

28. The method of claim 22 further comprising maintaining
the pH of the process water admixed with the chlorine dioxide
solution between about 2 and about 10.5.

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